

CLAIMS

What is claimed is:

1. In a combination of a semiconductor die and a portion of a lead frame located adjacent to the semiconductor die in a molding apparatus, said molding apparatus having an upper mold half and a lower mold half, comprising:
said upper mold half of said molding apparatus having a cavity formed therein;
said lower mold half of said molding apparatus having a cavity formed therein having a first portion and having a second portion below the first portion;
a semiconductor die having an upper surface and a lower surface, the semiconductor die located in at least a portion of the cavity of the upper mold half located adjacent a portion of said lead frame;
a heat sink having an upper surface connected to the lower surface of the semiconductor die and having a lower surface having a periphery, the heat sink located in at least a portion of the first portion of the cavity in the lower mold half, said heat sink comprising a metal material; and
a dam connected to the heat sink, the dam located on the lower surface of the heat sink, extending around the periphery thereof and extending from the periphery of the lower surface of the heat sink into at least a portion of the second portion of the cavity in the lower mold half, said dam openly communicating with the lower mold half.
2. The combination of claim 1, wherein the dam includes a gasket.
3. The combination of claim 1, wherein the heat sink and the dam each comprise a material including copper, aluminum, or alloys thereof.
4. The combination of claim 1, wherein the dam comprises a material including copper.

5. The combination of claim 1, wherein the dam comprises a material including polyamide material.

6. The combination of claim 1, wherein the dam comprises a material including leadlock tape material.

7. The combination of claim 6, wherein the leadlock tape material includes a polyamide carrier film and an adhesive material.

8. A semiconductor device assembly having at least a portion of a lead frame encapsulated in a material in a molding apparatus having an upper mold half and lower mold half, said upper mold half and lower mold half each having a cavity formed therein, comprising: a semiconductor die having an upper surface and a lower a surface located adjacent said portion of a lead frame;

a heat sink located in one of said upper mold half and lower mold half of said molding apparatus, the heat sink having an upper surface and a lower surface, each of the upper surface and the lower surface having a periphery, one of the upper surface and the lower surface for contacting one of the upper surface and the lower surface of the semiconductor die, said heat sink comprising a metal material; and

a dam located adjacent the heat sink for contacting one of the upper surface and the lower surface of the semiconductor die, the dam located at the periphery of one of the upper surface and the lower surface of the heat sink and located adjacent the material, said dam for openly communicating with an environment in the lower mold half.